

The copied holograms maintained a stable image for a long period of 3 months or more, after peeling the protective material. The records were formed only with the refractive index modulation, but not unevenness on the recording layer, and transparent holograms having substantially no absorption in the visible region were obtained.

EXAMPLE 24

(1) 6 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.), 4 g of ethylene glycol dimethacrylate ("NK Ester 1G" produced by Shin-Nakamura Chemical Co., Ltd.), 0.5 g of benzil, 0.17 g of Michler's ketone, and 22g of acetone were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(2) The composition was coated on one surface of a glass plate substrate having a dimension of 50 x 60 x 1.5 mm to a thickness of 10 μm . Acetone was removed from the coated layer under reduced pressure, to produce a recording material having a two-layer structure comprising the substrate and the recording layer.

(3) A protective material comprising a glass plate having the same size as the substrate was placed to cover the recording layer, to produce a three-layer photosensitive plate of a sandwich form for recording a hologram.

(4) An object to be recorded was irradiated with He-Cd laser light, and interference was formed between reference light reflected from a reflector and object light reflected from the object. The three-layer photosensitive plate for recording a hologram was placed at a position, at

which a fringe pattern formed by the interference could be caught. The photosensitive plate was exposed to the He-Cd laser light (9 mW/cm^2) for a prescribed period of time under the conditions, and an interference fringe to be a hologram could be recorded on the photosensitive plate only by this operation with an exposure time of either 15 seconds, 30 seconds, 45 seconds, 1 minute, 2 minutes, 5 minutes or 10 minutes.

No operation of development or fixing was necessary. Because the recording layer was sandwiched by the two glass plates, the thickness of the recording layer was uniform after exposure. There was no unevenness between a portion that had been irradiated with light of a high intensity and a portion that had been irradiated with light of a low intensity, and the record was formed with a refractive index modulation. A transparent hologram having a high brightness (resolution: 940 lines per mm) and substantially no absorption in the visible region was thus obtained. A stable image was maintained after removing the protective material.

EXAMPLE 25

(1) 5 g of diallylorthophthalate prepolymer ("Daiso DAP Type A" produced by Daiso Co., Ltd.), 5 g of ethylene glycol dimethacrylate ("NK Ester 1G" produced by Shin-Nakamura Chemical Co., Ltd.), 0.5 g of benzil, 0.17 g of Michler's ketone, and 22g of acetone were mixed at an ordinary temperature to prepare a recording material composition comprising these components.

(2) The composition was coated on one surface of a glass plate substrate having a dimension of $50 \times 60 \times 1.5 \text{ mm}$ to a thickness of $10 \mu\text{m}$. Acetone was removed from the coated layer under reduced pressure, to

produce a recording material having a two-layer structure comprising the substrate and the recording layer.

(3) A protective material comprising a PET film having a size of 50 x 60 mm and a thickness of 10 μm was placed to cover the recording layer, to produce a three-layer photosensitive plate for recording a hologram.

(4) An object to be recorded was irradiated with He-Cd laser light, and interference was formed between reference light reflected from a reflector and object light reflected from the object. The three-layer photosensitive plate for recording a hologram was placed at a position, at which a fringe pattern formed by the interference could be caught. The photosensitive plate was exposed to the He-Cd laser light (9 mW/cm²) for a prescribed period of time under the conditions, and an interference fringe to be a hologram could be recorded on the photosensitive plate only by this operation with an exposure time of either 15 seconds, 30 seconds, 45 seconds, 1 minute, 2 minutes, 5 minutes or 10 minutes.

No operation of development or fixing was necessary. Because the recording layer was sandwiched by the glass plate and the protective material comprising the PET film, the thickness of the recording layer was uniform after exposure. There was no unevenness between a portion that had been irradiated with light of a high intensity and a portion that had been irradiated with light of a low intensity, and the record was formed with a refractive index modulation. A transparent hologram having a high brightness (resolution: 940 lines per mm) and substantially no absorption in the visible region was thus obtained. A stable image was maintained after removing the protective material.